**Ontario Institute for Studies in Education**

**OISE/UT**

**University of Toronto**



**Additional Basic Qualification:**

**Senior Science: Biology**

COURSE CODE: EAQ1310YS

COURSE OF STUDY

**SUMMER 2009**

July 2,3,6-10,13-17,20-23

8:00a.m. – 1:30 p.m.

Instructor:

Marian Vella [marian.vella@tel.tdsb.on.ca](mailto:marian.vella@tel.tdsb.on.ca)

Course Website: [**http://sites.google.com/site/biologypageswithvella/**](http://sites.google.com/site/biologypageswithvella/)

1. **COURSE DESCRIPTION: Introduction**

The Additional Basic Qualification (ABQ): Senior Biology has been designed according to the requirements set out by the Ontario College of Teachers, as identified in Regulation 184/97, Teacher’s Qualifications. As such, it integrates the *Standards of Practice for the Teaching Profession* and the *Ethical Standards for the Teaching Profession* and meets the legislative requirements included in Regulation 184/97. The outline of the course content and expectations are based on the Ministry of Education and Training The Ontario Curriculum, Grades 11 & 12: Science, and the College of Teachers Additional Qualifications Course Guideline, Senior Division Science – Biology. The underlying purpose of the ABQ in Senior Biology is to extend the skills and knowledge of teachers in the design, delivery and assessment of a science program delivered at the senior level.

The Senior Biology ABQ consists of a series of lectures, seminars, and laboratory workshops designed to emphasize the objectives, methodology, and content of biology of the Senior Divisions (grades 11 and 12). The course examines the expectations of senior biology education, strategies for implementing the expectations, and methods and instruments suitable for assessing the attainment of the expectations for students studying in the senior division. It also integrates the standards of practice and ethical standards for the teaching profession as they pertain to Biology Education at the Senior Biology Division through case studies, in-class discussions, readings, analysis and applications to teaching practice.

The course is designed so individual students can earn accreditation in Senior Biology which will be recorded on the Certificate of Qualification issued to members of the College.

**2. Background**

The ABQ in Senior Biology is a prerequisite for teaching Biology University and College preparation courses in the senior division. Candidates for this course must have the requisite science background. The prerequisite for the course is 5 full courses in biology at the university level. Validity of the courses on the transcripts is determined by the Registrar of the university offering the course.

Teachers who would be interested in obtaining this qualification include teachers who want to teach biology at the senior level and do not have the qualification, teachers who are making divisional changes, teachers who plan to move into administrative positions, teachers who are new to the Ontario school system and teachers who are interested in further professional development in science education.

As an additional basic qualification, this course explores the development of adolescents, program planning and delivery issues, the secondary school environment and other issues related to teaching and learning in grades 11 and 12. At least one half of the course concentrates on subject specific curriculum.

**3. Standards of Practice for the Teaching Profession and the Ethical Standards for the Teaching Profession.**

*The Foundations of Professional Practice*, of the Ontario College of Teachers, serve as the guiding principles for the Additional Basic Qualification: Senior Biology course. See the full text course of study for these expectations.

**4. Learning Expectations**

The *Standards of Practice for the Teaching Profession* and the *Ethical Standards for the Teaching Profession* have been embedded in the learning expectations for the additional basic qualification course: Science-General. See the full text course of study for these expectations.

**5. Curriculum Content, Additional Basic Qualification: Senior Biology**

*Choices into Action and Ontario Secondary Schools, Grades 9-12*

*Program Planning and Assessment, Grades 9-12*

*The Ontario Curriculum, Grades 9 and 10: Science; Grades 11 and 12: Science*

*The Ontario Curriculum, Grades 1-8: Science and Technology*

*Individual Education Plans: Standards for Development, Program Planning and Implementation*

*Environmental Education, Grades 9-12: Scope and Sequence of Expectations (2008)*

See the full text course of study for the topics successful candidates will demonstrate their understanding and ability to apply.

**6. Course Time Allocation**

The instructors will meet with small groups and individuals during monitored time to facilitate discussions, assist with concept planning, expedite unit planning etc.

**Total Time**

**125 h**

**Contact Time**

**100 h**

**Non-Contact Time**

**25 h**

**Classroom Contact**

**80 h**

**Monitored Contact**

**20 h**

lectures

concept presentation

laboratory activities

demonstrations

guest speakers

small group activities

field trips

research activities

mentoring activities

unit planning

conferencing with instructor

concept research

unit planning

AV preparation

lab material prep

software prep

readings

**7. Course schedule**

This course is divided into **themes** as follows. See full text course of study.

***1) Laboratory Practice 7) Science, Technology, Society and the Environment***

***2) Teaching Strategies*** ***8) Classroom Applications of Technology***

***3) Assessment and Evaluation 9) Inquiry Learning in Science***

***4) Learning Strategies*** ***10) Field Trip design***

***5) Differentiation in the science classroom***

***6) Scientific Models and Demonstrations***

**8.0 OVERVIEW OF ASSIGNMENTS AND METHODS OF EVALUATION**

The final grade for this program is based on several component parts. These are summarized on a sheet entitled “Evaluation Plan” which you can use as a progress chart to record your achievement on each of the parts. These pages describe and explain the different components in more detail. **Note: All items for evaluation must comprise different topics at the senior level whenever curriculum items are involved.**

1. **The Concept Presentation and Critique** includes researching resources for an assigned concept in one of the four science disciplines at the grade 11 or 12 level, and planning and implementing a presentation on the teaching of the concept. (The discipline will be determined by the credit being earned) Candidates are to work in pairs if possible. A maximum of 50 min are scheduled for the concept presentation. At 45 min a signal will be given to the presenter(s) showing the remaining time. The presenter(s) should then begin to wrap up the presentation. A penalty for running over the allotted 50 min will be imposed.

The presentation should overview the concept, identify resources, activities and

demonstrations for teaching the concept to senior level students, identify potential areas

of difficulty, and illustrate and discuss teaching strategies. The presenter(s) will distribute

a summary of the presentation to peers and the instructor. The lesson will be videotaped

and then critiqued by the presenter(s) and a report and reflection on the experience and

the videotape will be submitted to the instructor.

See assignment: Concept Lesson (150 points).

1. **The Mini-Unit Plan** involves a small team (maximum 3/group) working together to prepare a 20 lesson overview, a unit test, and a culminating task for one of the topics from the Ministry of Education ***The Ontario Curriculum: Grades 11 & 12: Science, (1999).*** See Assignment: Unit Planning . Students shall prepare a Mini Unit Plan in the Subject they are earning.
   1. Unit Overview (70 points)

The unit-planning group will sequence the expectations (using codes) for a unit into lessons, will describe detailed lesson and assessment tools to achieve the expectations and list valid and varied evaluation methods or strategies that support the achievement of the expectations.

* 1. Unit Test (50 points)

Each unit-planning group will create a ready-to-use end of unit test and scoring scheme. Submit two copies, one with answers and one with marking scheme.

* 1. Culminating Task and Assessment Tools (50 points)

Each unit-planning group will prepare a culminating task to be used at the end of the unit to assess students’ ability to integrate key expectations for the unit.

* 1. Revising and Sharing Resources (10 points)

Members of the unit-planning group will revise the above materials based on

the instructor’s comments before sharing them with peers.

**C.** **In Class Activities.** Additional tasks in connection with the day-to-day class

activities will be assigned. See Appendix F. The remaining points in this

section will be awarded on the basis of your work and participation in the

course activities including the thoroughness of your recommendations to the

concept lesson leader. (180 points)

**8.1 GRADING FRAMEWORK**

The following table summarizes the generic framework that will be used by your instructor to guide assessment and evaluation practices. Candidates will find this framework helpful for interpreting grades for all assignments. A grade in the A range corresponds to a level 4 as defined by the Ministry of education and Training. Grades in the B, C, and D ranges correspond to levels 3, 2, and 1 respectively.

|  |  |  |  |
| --- | --- | --- | --- |
| Level | Letter  Grade | Percentage Range | Description |
| Four | A+  A  A- | 90-100  85-89  80-84 | **Work of exceptional quality.**  The content, organization and style are all at a high level and move the discussion well beyond what was covered in class. The written work demonstrates excellent comprehension of the subject and, where appropriate, integrates existing research and literature. The work also demonstrates sound critical thinking, innovative ideas, and personal engagement. |
| Three  (Standard) | B+  B  B- | 77-79  73-76  70-72 | **Work of good quality with no major weaknesses.**  All of the required elements of the assignment have been fulfilled. The writing is clear and explicit; the coverage and demonstrated comprehension of the topic is more than adequate. Some degree of critical thinking and personal involvement in the work is shown. There is good use of existing knowledge on the subject. |
| Two | C+  C  C- | 67-69  63-66  60-62 | **Adequate Work.**  All of the required elements have been included, although some conceptual inadequacies are present. A fair comprehension of the subject is demonstrated, but some weaknesses in content, style, organization, critical awareness, personal involvement and/or use of the literature are apparent. |
| One | D | 50-59 | **Some elements of the assignment are missing.**  Candidates may complete these elements and re-submit the assignment to raise the grade to a MAXIMUM level of C. |
| Fx |  | 0-49 | **Failing Work.**  The candidate needs to meet with the instructor. |

**8.2 EVALUATION PLAN**

MAXIMUM POINTS POINTS OBTAINED

**A Concept Presentation & Critique 150**

**B Unit Planning 180**

a) Unit Overview (70)

b) Unit Test (50)

c) Culminating Task (50)

d) Resource Sharing (10)

**C In-Class Activities 170**

**TOTAL……….. 500**

**ATTENDANCE POLICY**

IN ACCORDANCE WITH REGULATION 184/97 ATTENDANCE IN ALL CLASSES, AND FOR THE DURATION OF THE CLASS, IS MANDATORY. ABSENCES MAY JEOPORDIZE SUCCESSFUL COMPLETION OF THE COURSE.

PLEASE ARRANGE ALL APPOINTMENTS OUTSIDE OF THE COURSE HOURS AS LISTED IN THE CALENDAR. IF AN EMERGENCY OCCURS THAT REQUIRES YOUR ABSENCE THIS MUST BE REPORTED TO BOTHE THE COURSE PRINCIPAL [(416) 978-7865] AND THE INSTRUCTOR.

NOTE: ANY ASSIGNMENT NOT SUBMITTED BY THE DUE DATE WILL BE PENALIZED UNLESS ACCOMPANIED BY A DOCTOR’S CERTIFICATE. LATE ASSIGNMENTS RECEIVE A MAXIMUM GRADE OF A B-.

**8.3 ASSIGNMENT – CONCEPT PRESENTATION AND CRITIQUE**

You must work in pairs if possible. It is essential that both partners participate equally and actively in all parts of the planning and implementation. You will research resources for an assigned

concept from on e of the three traditional science disciplines at the grade 11 or 12 level, and plan and implement a **50 min** presentation on the teaching of the concept. The presentation should overview the concept; describe potential difficulties students will have with the concept including misconceptions; identify resources, activities and demonstrations for teaching the concept; and illustrate the teaching strategies. Your concept presentation will give you an opportunity to develop skills for the development science curriculum that meets the needs of a diverse group of senior division learners. You will distribute a summary of the presentation to peers and the instructor.

The presentation should include where appropriate the following:

1. an interesting introduction to the concept;
2. an outline of a lesson sequence for teaching the concept;
3. an identification of potential difficulties students will have and suggestions for overcoming the student difficulties;
4. the use of visual aids and the chalkboard;
5. at least one demonstration
6. reference to any safety considerations;
7. a description of appropriate instruments for evaluating the concept;
8. a description of practical applications and societal implications;
9. appropriate Internet sites;
10. an indication of what expectations were covered.
11. at least one activity for your peers to do and suggestions for other student labs

To expedite the presentation, a summary is to be prepared (**maximum of 6 sheets**). You are to photocopy enough copies of the handout for distribution to the class and the instructor.

A ***possible format*** for the handout is:

a) candidates’ names g) student difficulties

b) title of concept h) teaching ideas

c) background information i) evaluation procedures

d) advance preparation j) applications and societal issues/implications

e) special materials k) lesson sequence

f) **annotated** references l) annotated Internet addresses

The oral part of the presentation will give you the opportunity to display some of the skills of a superior teacher: organization, enthusiasm, initiative, scholarship, showpersonship, ability to communicate, pace and timing, skill in handling questions and discussing. Where possible concrete materials and visual aids should be used to enhance the presentation and your peers should be actively involved. Peers will give written feedback using “Recommendations for Concept Leader”. You will read the peer recommendations, and critique the videotape of the lesson. Then you will prepare a response paper of between 2 and 4 pages in length with the intention of i) reflecting on the experience (i.e. what have you learned about yourself, about teaching, and about learning science and ii) critiquing the concept presentation. The report will give you the opportunity to respond to the suggestions of peers, demonstrate your ability to analyze planning and teaching skills, identify areas needing improvement, and describe remediation measures you would take. The lesson and response paper will be evaluated by the instructor using “The Rating Scale for Concept Lesson and Critique”. (See Appendix A) **If you work with a partner, each person must submit a response paper.**

***Deadlines for Concept Presentation***

Topic chosen: TBA

Submit Materials List, if needed, to instructor: TBA

Presentation Dates: Various dates – depending on topic.

**8.4 ASSIGNMENT: UNIT PLANNING**

The intent of this assignment is to provide you with the opportunity, in a small group (no larger than 3), to practice the process of unit planning for the Grade 11 level. You must choose one of the strands and topics in the Ministry of Education. ***The Ontario Curriculum Grades 11 & 12, Science (2008)***

**EVALUATION OF UNIT PLANNING ASSIGNMENT**

The unit plan is the major assignment for this course. The Unit Overview is submitted first. Then the group works together to prepare a unit test designed to validly assess the students understanding of basic concepts and how science relates to technology, society, and the environment. Finally, the group prepares a culminating task designed to have students apply a significant number of the key expectations of the unit. The schedule of events and weightings are summarized below.

|  |  |  |
| --- | --- | --- |
| **Components** | **Point Value** | **Submission Date** |
| Draft of Overview for instructor feedback  Submitted on conference |  | TBA |
| Unit Overview | 70 | TBA |
| Culminating Task & Assessment Tools | 50 | TBA |
| Unit Test | 50 | TBA |
| Upload Revised Materials and Concept Presentation | 10 | TBA |
| **TOTAL** | **/180** |  |

**PLANNING PROCEDURE AND SEQUENCE**

1. **Unit Plan Topic** – will be assigned to you on the first day of class. Topics will be chosen from the Grade 11 Strands and Topics outlined in The Ontario Curriculum Grades 11 & 12: Science, (2000) for the University bound students.
2. **Unit Overview**

The unit overview for the total topic must identify and sequence the specific expectations, lesson strategies, and assessment tools for 20 lessons (20h). The format for the unit overview follows.

|  |  |  |  |
| --- | --- | --- | --- |
| **Lesson (Title and topic)** | **Expectation Codes** | **Lesson Strategy and Assessment** | **Evaluation including criteria addressed from Achievement Chart** |
|  |  | -enough detail to allow a colleague to follow your lesson  -describe what strategy will be used to assess student understanding | -ensure that the evaluation is appropriate to your lesson strategy |

Assume that the unit will take 20 h to teach. Map out the unit. To do this, consult appropriate pages in ***The Ontario Curriculum Grades 11 & 12: Science, (2000)*** and read the Overview, the Overall Expectations and the Specific Expectations for the topic. Consult available texts and teaching resources for the topic. The following publishers have published texts for the grade 11 university stream: Addison-Wesley, Irwin (physics only), McGraw-Hill Ryerson, TPT Nelson. Then list the expectations for each lesson in the appropriate column of the table. It is not necessary to have an expectation in each column but strive for breadth. All expectations must be addressed by the end of the 20 lessons. List in detail the Learning Strategy(ies) and Assessment Tools to be used for each lesson. A list of learning strategies and assessment tools follows.

***Learning Strategies examples***

( ) problem solving ( ) brainstorming ( ) case study

( ) concept mapping ( ) computer simulation ( ) cooperative learning

( ) debating ( ) demonstration ( ) discussion

( ) experimenting ( ) field trip ( ) guest speaker

( ) independent study ( ) inquiry ( ) lab activities

( ) lecture ( ) modeling ( ) problem solving

( ) question and answer ( ) role playing ( ) seminar

( ) simulations ( ) Socratic episode ( ) student presentation

***Assessment Tools***

( ) Alternate-response ( ) Anecdotal record ( ) Checklist

( ) Extended Essay ( ) Interview ( ) Scoring Rubric

( ) Lab Bell Ringer ( ) Multiple Choice ( ) Numerical Problem

( ) Peer Evaluation ( ) Rating Scale ( ) Short answer essay

( ) Self Evaluation ( ) Response Journal

***(The Curriculum Planner is a good resource for planning learning and assessment strategies)***

Check for validity among the expectations, teaching strategies, and assessment tools across the table. Are the teaching strategies valid for achieving the concept, sill and STSE expectations? For example, has an inquiry activity been included to nurture inquiry skills? Are students required to write, speak, etc. for communication skills? Are the assessment tools valid for evaluating the achievement of the expectations? For example, a scoring rubric, not a paper and pencil tool, is valid for assessing the ability to use inquiry skills.

The unit overview will be evaluated using the “Rating Scale for Unit Overview” (Appendix B)

1. **Unit Test**

Each unit planning group will prepare, in ready-to-use form, an end of unit test to be used to assess students’ attainment of specific expectations dealing with the understanding of basic concepts and relating science to technology, society, and the environment. No tools for assessing inquiry and communication skills need be included since these would be assessed during labs and live presentations. The test should be designed for a 75 min high school period.

The test should include a variety of the following assessment tools as appropriate to the content. a) Multiple choice questions – minimum of 5

b) Conceptual short answer question

c) Longer/essay answer

* + 1. Problem based/problem solving questions
    2. Diagrams/graphs etc.
    3. other

1. **Unit Culminating Task and Assessment Tools**

A culminating task is an activity undertaken by students at the end of a topic. The culminating task requires students to apply a significant number of the expectations outlined by the Ministry for the topic. Your group is to:

1. identify a suitable culminating task (check with your instructor)
2. create teacher instructions with background information that can be used when the task is introduced.
3. create “ready-to-use” student assignment. This should include all of the hand-outs that will be given to students and that explain clearly what is expected of them.
4. create a scoring rubric to be used to the final student product.

## 8.5 IN-CLASS ACTIVITIES

These points will be awarded on the basis of your in-class work throughout the summer. The constructive feedback you give peers on concept workshops will form part of this. Another part of the participation is gleaned from evaluation of active participation in the Unit Plan assignment. This will involve interviews with the instructor and personal reflections at different stages of the writing process. The instructors will give additional small assignments either to be done in class as part of the instruction, or at home in preparation for a future lesson/activity.

**(Appendix A)** RATING SCALE FOR CONCEPT PRESENTATION AND CRITIQUE

**PRESENTER(S): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

The letters used in assessing the Criteria for the presentation, outline, and critique have the following

meanings: E - Exemplary; A - Very Good; B – Good; C – Adequate; D – Marginal; Fx – Inadequate.

Areas of weakness have been underlined or **Highlighted** in the Description column.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Criteria | Descriptions of Criteria | Fx | D | C | B | A | E |
| PRES’N |  | | | | | | |
| Organization | The introduction was interesting, student difficulties were identified, strategies were emphasized, presentation was logical, and safety considerations were identified and implemented. | 5 | 11 | 13 | 15 | 17 | 20 |
|  | | | | | |
| Creativity and Peer Involvement | The presentation included creative ideas, interesting presentation methods were used, and peers were involved in a creative way with the material. | 5 | 11 | 13 | 15 | 17 | 20 |
|  | | | | | |
| Ability to Communicate | The content was presented clearly and concisely, applications and societal implications were described, concrete materials were displayed, and demonstrated, audio-visual devices were used effectively, the command of English was superior, and the presentation was audible and well modulated. | 6 | 14 | 16 | 18 | 21 | 25 |
|  | | | | | |
| Questioning | Clear concise questions were asked and accurate answers were given to questions asked by peers and by the instructor. | 3 | 5 | 6 | 7 | 8 | 10 |
|  | | | | | |
| Scholarship with respect to content | A superior mastery of the topic was exhibited and no errors in content or methodology were evident. | 4 | 8 | 10 | 11 | 13 | 15 |
|  | | | | | |
| Pace and Timing | A realistic amount of information was taught, time was spent on important details, and the presentation was completed within the allotted time. | 3 | 5 | 6 | 7 | 8 | 10 |
|  | | | | | |
| Overall Impression | The presentation was of high quality and left participants with a very positive impression. | 3 | 5 | 6 | 7 | 8 | 10 |
|  | | | | | |
| OUTLINE | The outline was well organized, background information, advance preparations and special materials were noted, curriculum emphasis was identified, lesson sequence was outlined, students difficulties/misconceptions were noted, teaching strategies, evaluation procedures, applications, societal issues and annotated references were included. | 5 | 11 | 13 | 15 | 17 | 20 |
|  | | | | | |
| CRITIQUE  (**Individual** RESPONSE PAPER) | Evidence of analytical and critical reflection. Valid strengths and weaknesses were identified and documented, valid remediation strategies were described, the report was well organized and the report and feedback sheets were submitted within two class days of the presentation. | 5 | 11 | 13 | 15 | 17 | 20 |
|  | | | | | |
| TOTAL | | /150 POINTS | | | | | |

**Comments:**

**(Appendix B) Rating Scale: Unit Overview (70 Points)**

**Names: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

The letters have the following meanings: E – Exemplary; A – Very Good; V – Good; C – Adequate; D – Marginal; Fx – Inadequate. Areas of weakness have been underlined or **Highlighted** in the Description of Criteria column.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Criteria** | **Description of Criteria** | **Grade** | | | | | |
| **Fx** | **D** | **C** | **B** | **A** | **E** |
| **Lesson Title and Sequence and timing** | The lesson sequence is valid, clear and each includes appropriate activities and timing. | 1.25 | 2.75 | 3.25 | 3.75 | 4.25 | 5.00 |
| **Listing and Sequencing Expectation Codes** | Each of the expectations (basic concepts, inquiry and design skills, communication skills, and knowledge of science and technology relating to the real world) are covered in a logical sequence throughout the 20 lessons. | 1.25 | 2.75 | 3.25 | 3.75 | 4.25 | 5 |
| **Expectations match strategies and assessment** | As overview chart is read horizontally, it is clear that the learning and assessment strategies support the stated expectations. | 2.5 | 5.5 | 6.5 | 7.5 | 8.5 | 10 |
| **Learning Strategies and assessment** | The listed learning strategies are interesting, valid, varied, and have an authentic and performance based component. There is enough detail provided that a colleague could follow your plan. | 7.5 | 16.5 | 19.5 | 22.5 | 25.5 | 30 |
| **Evaluation and Achievement Chart categories** | An appropriate collection and variety of valid assessment tools have been listed, and show coverage of all of the categories from the achievement chart. | 5 | 11 | 13 | 15 | 17 | 20 |
| **TOTAL** | | **/70 POINTS** | | | | | |

**Comments:**

**(Appendix C) Scoring: Unit Test (50 Points)**

**Names: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

The levels have the following meaning: Level 4 (80-100%); Level 3 (70-79%); Level 2 (60-69%); Level 1 (50-59%); Level R (<49%). Each criteria is weighted equally.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Criteria** | **Level R** | **Level 1** | **Level 2** | **Level 3** | **Level 4** |
| **Variety of Question types. (p.16)** | The questions demonstrate inadequate variety | The questions demonstrate barely adequate variety | The questions demonstrate below average variety | The questions demonstrate average variety | The questions demonstrate outstanding variety |
| **Clarity of questions and Organization of Test** | The questions demonstrate inadequate clarity and organization. | The questions demonstrate barely adequate clarity and organization. | The questions demonstrate below average clarity and organization. | The questions demonstrate average clarity and organization. | The questions demonstrate outstanding clarity and organization. |
| **Potential to Validly Assess the Expectations** | The questions demonstrate an inadequate potential to validly assess the expectations. | The questions demonstrate a barely adequate potential to validly assess the expectations. | The questions demonstrate below average potential to validly assess the expectations. | The questions demonstrate average potential to validly assess the expectations. | The questions demonstrate outstanding potential to validly assess the expectations. |
| **Quality and Authenticity of Questions** | The quality and authenticity are inadequate. | The quality and authenticity are barely adequate. | The quality and authenticity are below average. | The quality and authenticity are average. | The quality and authenticity are outstanding. |
| **Accuracy and Completeness of Model Answers and Scoring Schemes** | The model answers and scoring schemes are inadequate or missing. | The model answers and scoring schemes are barely adequate. | The model answers and scoring schemes are below average. | The model answers and scoring schemes are average. | The model answers and scoring schemes are outstanding. |
| **Score** | **/50** | | | | |

**Comments:**

**(Appendix D) Scoring Rubric: Culminating Task and Assessment Tools (50 Points)**

**Names: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

The levels have the following meaning: Level 4 (80-100%); Level 3 (70-79%); Level 2 (60-69%); Level 1 (50-59%); Level R (<49%).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Criteria** | **Level R** | **Level 1** | **Level 2** | **Level 3** | **Level 4** |
| **Culminating Task** | | | | | |
| **Creativity and Originality** | The culminating task demonstrates inadequate creativity and originality. | The culminating task demonstrates barely adequate creativity and originality. | The culminating task demonstrates below average creativity and originality. | The culminating task demonstrates average creativity and originality. | The culminating task demonstrates outstanding creativity and originality. |
| **Clarity and Organization** | The culminating task demonstrates inadequate clarity and organization. | The culminating task demonstrates barely adequate clarity and organization. | The culminating task demonstrates below average clarity and organization. | The culminating task demonstrates average clarity and organization. | The culminating task demonstrates outstanding clarity and organization. |
| **Potential to Validly Assess the Expectations** | The culminating task demonstrates an inadequate potential to validly assess the expectations. | The culminating task demonstrates a barely adequate potential to validly asses the expectations. | The culminating task demonstrates below average potential to validly asses the expectations. | The culminating task demonstrates average potential to validly assess the expectations. | The culminating task demonstrates outstanding potential to validly asses the expectations. |
| **Quality and Authenticity** | The culminating task demonstrates inadequate quality and authenticity. | The culminating task demonstrates barely adequate quality and authenticity. | The culminating task demonstrates below average quality and authenticity. | The culminating task demonstrates average quality and authenticity. | The culminating task demonstrates outstanding quality and authenticity. |
| **Assessment Tools** | | | | | |
| **Variety, creativity and quality of Assessment Tools used to assess components of the Culminating Task** | The assessment tools demonstrate inadequate variety, creativity, originality and quality. | The assessment tools demonstrate barely adequate variety, creativity, originality, and quality. | The assessment tools demonstrate below average variety, creativity, originality and quality. | The assessment tools demonstrate average variety, creativity, originality, and quality. | The assessment tools demonstrate outstanding variety, creativity, originality, and quality. |
| **Validity of Assessment Tools Used to Assess Components of the Culminating Task** | The assessment tools demonstrate inadequate potential to validly assess the components. | The assessment tools demonstrate barely adequate potential to validly assess the components. | The assessment tools demonstrate below average potential to validly assess the components. | The assessment tools demonstrate average potential to validly assess the components. | The assessment tools demonstrate outstanding potential to validly assess the components. |
| **Score** | **/50 points** | | | | |

**(Appendix F) Biology In Class and On-line Activities - Evaluation**

|  |  |  |
| --- | --- | --- |
| **Area** | **Criteria** | **TOTAL** |
| Conference Participation | Two Biology sites appropriate for students and/or teachers of grade 11 Biology (college or university) are posted in the internet sites folder and a short review of the site is included.  ***Due date: before July 17th*** (16 marks)  Students participate on the conference by posting a short (less than 300 words) reflection on any topics addressed in biology class – 3 posting total. Due date: by July 21st (20 marks)  *Student history* demonstrates that the conference is being accessed regularly throughout the course to download materials (2 marks). An introduction email is posted by July 6th. (2 marks) | /40 |
| Cooperative Activities i.e. quizzes/ordering activities/jigsaws | Students are expected to be present and participate in the completion of cooperative activities. (i.e. jigsaws, bingo games, TGT, group presentations) | /40 |
| Assessment Practice | Students are expected to create both summative and formative assessments applicable to the course content. i.e. veritech tile, microviewer worksheet | /20 |
| Lab Activities | Students will be participating in one or two labs. The evaluation will be based on safe, correct procedures,  (6 marks) active participation (6 marks), evidence of proper preparation (i.e. reading the lab procedure beforehand) and effective use of time (6 marks), observations or drawings made, questions answered after the lab is completed. (12 marks)  When a lab is completed, you should evaluate how you would approach this lab with a class, what safety precautions would you take, how you would introduce the lab to a class, how you would ensure students use their time wisely, what expectations this lab addresses, what modification you might use for students of different learning abilities, what are the limitations of the lab, what improvement would you like to include, how you would ensure students clean up, how you would evaluate the lab + other comments. 10 marks for reflections on labs submitted immediately after completion of the lab or to be posted in the conference. | /40 |
| Preparation of Field Trip | Candidate prepares an appropriate permission form, find a bus company (and pricing) and price the field trip. Candidate creates an evaluation tool for student learning (formative or summative) during the field trip. The learning goals of the trip and connection to the biology course are clearly outlined. | /30 |
| **TOTAL** /170 | | |